REMARKS/ARGUMENTS

The Examiner's final Restriction Request is acknowledged and non-elected claims 11-33 have been canceled. A divisional application will be filed at a later date.

Examiner Michelle Estrada is thanked for thoroughly reviewing the subject application. Examiner is also thanked for the indication of allowing claims 4, 5, 9 and 10 if these claims are rewritten in independent form including all of the limitations of the base claim and any intervening claims.

All claims are believed to be in condition for allowance.

Claim rejections - 35 U.S.C. § 102

Reconsideration of the rejection of claims 1 and 2 under 35 U.S.C. 102(e) as being anticipated by Tosaya et al. (U.S. Patent 6,538,320) is respectfully requested based on the following.

Tosaya provides a heat spreader having holes for rivet-like adhesive connections. Most specifically Tosaya provides for

a package board 112, shown in the cross section of Fig. 4 of Tosaya. Tosaya further provides for a heat spreader 102 having flanges 108 extending in a continuous manner about the periphery of the heat spreader 102, holes 110 are provided through the flanges 108. For mounting and anchoring the heat spreader 102 over the package board 112, Tosaya applies adhesive 116 through holes 110, the "head" 118 of the adhesive 116 acts on the upper surface of the flange 108 to connect the heat spreader 102 firmly to the package board 112. Also, the adhesive 116 expands to fill the holes 110 to provide lateral anchoring of the heat spreader 102 (see col. 2, lines 57-67 of Tosaya et al.).

Tosaya does not provide for, as specified in claim 1 of the claimed invention, and as underlined in the following quote of claim 1, for:

(a) providing a substrate for a PBGA package, the substrate having been provided with heat spreader **anchor posts over the surface thereof**, the heat spreader anchor posts being separated by a first distance;

(b) providing a heat spreader for a PBGA package, the heat spreader comprising:

(i) a horizontal portion, being parallel with the surface of the substrate of the PBGA package;

(ii) heat spreader stand-off features;

(iii) the heat spreader stand-off features having a contact surface providing contact between the heat spreader and the substrate;

(iv) the contact surface of the heat spreader stand-off features having been provided with openings there-through; and

(v) the openings provided through the contact surfaces being separated by a distance of the first distance;

(c) **aligning** the anchor posts provided over the surface of the substrate with the openings provided through the contact surfaces of the stand-off features of the heat spreader; and

(d) **inserting** the anchor posts provided over the surface of the substrate into the openings provided through the contact surfaces of the stand-off features of the heat spreader, creating anchor posts protruding through the openings provided through the contact surfaces.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claims 1 and 2 under 35 U.S.C. 102(e) as being anticipated by Tosaya et al. (U.S. Patent 6,538,320) be withdrawn.

Claim rejections - 35 U.S.C. § 103

Reconsideration of the rejection of claims 3 and 6-8 under 35 U.S.C. 103(a) as being unpatentable over Tosaya et al. (U.S. Patent 6,538,320) as applied to claims 1 and 2 above and further in view of Panchou et al. (U.S. Patent 6,218,214) is respectfully requested based on the following.

The relative merits of Tosaya et al. (U.S. Patent 6,538,320) with respect to the claimed invention have been argued above and are enclosed at this time by reference at being equally applicable to claims 3 and 6-8.

Panchou refers to elements 26 as conductive bumps, not, as asserted by Examiner, as anchor posts. Panchou cites, as stated in Co. 4, lines 16 e.a., that conductive bumps 26 can be formed, such as by bumping using gold (Au) wire.

Panchou provides for (relatively large) cut-outs in ceramic substrates into which two chips are mounted back-to-back. Panchou provides for through holes 24 through which the

conductive bumps are inserted. Control impedance lines 30 are secured by conductive epoxy 32 to the conductive bumps.

Applicant respectfully suggests that it is difficult to establish any meaningful relationship between the Panchou invention and the claimed invention.

Claims 3 and 6-8 of the claimed invention provide additional detail relating to the anchor posts that are provided for anchoring a heat spreader of a Plastic Ball Grid Array (PBGA) package to the surface of an underlying substrate of the PBGA package (claim 3, 6, 7) and detail regarding conductivity aspects of the heat spreader of the package (claim 4, 5, 8).

Since neither Tosaya nor Panchou provide the anchoring posts that are provided by the claimed invention, it is difficult to connect either Tosaya or Panchou or a combination thereof with the claimed invention.

The aspects of the claimed invention that are not provided for by Panchou can be highlighted in the same manner as these aspects of the claimed invention have been highlighted above with respect to Tosaya and claim 1 of the claimed invention.

These aspects of the claimed invention are invoked as this time by reference as being equally applicable to Panchou with respect to claims 3 and 6-8.

The specification that are provided in these latter claims relate to aspect of the claimed invention that are not provided by either Tosaya or Panchou or a combination thereof, making claims 3 and 6-8 patentable over Tosaya or Panchou either singly or in combination.

None of the applied or known references address the invention as shown in independent claim 1 and dependent claims 3 and 6-8 of the claimed invention, which provides a method for anchoring a heat spreader to an underlying substrate by providing a substrate, the substrate having been provided with heat spreader anchor posts, the heat spreader having a horizontal portion with heat spreader stand-off features having openings there-through that align with the heat spreader anchor post provided over the substrate.

The invention is believed to be patentable over the prior art cited, as it is respectfully suggested that the combination

of these various references cannot be made without reference to Applicant's own invention.

None of the cited prior art references address the problem of firmly anchoring a heat spreader to a substrate by providing features over the substrate and as part of the heat spreader that align for purposes of anchoring the heat spreader to the substrate. Applicant has claimed the process in detail.

The processes of Figs. 3-5 and 6b-8f (Claims 1-10) are believed to be both novel and patentable over these various references, because there is not sufficient basis for concluding that the combination of claimed elements would have been obvious to one skilled in the art.

That is to say, there must be something in the prior art or line of reasoning to suggest that the combination of these various references is desirable. We believe that there is no such basis for the combination. We therefore request Examiner Michelle Estrada to reconsider the rejection in view of these arguments and the amendments to the Claims.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claims 3 and 6-8 under 35 U.S.C. 103(a) as being unpatentable over Tosaya et al. (U.S. Patent 6,538,320) as applied to claims 1 and 2 above and further in view of Panchou et al. (U.S. Patent 6,218,214), be withdrawn.

The prior art made of record and not relied upon that is considered pertinent to Applicant's disclosure, that is Hoffman (U.S. Patent 6,423,576 B1), Fjelstad (U.S. Patent 6,093,584), Lai et al. (U.S. Patent 6,323,066 B2), Chun (U.S. Patent 5,933,709), Wu (U.S. Patent 2002/0155640 A1) and Murayama et al. (U.S. Patent 2001/0009302 A1)) have been examined and have been found to be of general interest to the invention.

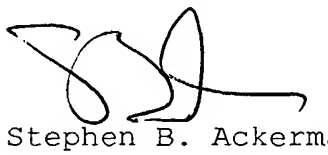
Other Considerations

No new independent or dependent claims have been written as a result of this office action, no new charges are therefore incurred due to this office action.

It is requested that, should Examiner not find the claims to be allowable, to call the undersigned Attorney at the

Examiner's convenience at 845-452-5863 in order to overcome any problems preventing allowance of the claims.

Respectfully submitted,



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